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OUTLINE OF THE

ANNUAL R & D WORK PROGRAM

DEVELOPMENT AND REVIEW SYSTEM

For The

ENGINEERING RESEARCH AND DEVELOPMENT BUREAU

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APRIL, 1971

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

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I N T R O D U C T I O N

Purpose

The purpose of this development and review system outline is to describe in general terms how the Annual R&D Work Program of the Engineering Research and Development Bureau of the Office of Transportation Operations is made responsive to the transportation goals of the department.

Scope

The scope of the system outline encompasses the development of the Annual R&D Program, the progress of on-going R&D projects,and the speed and degree of implementation of R&D findings.

Responsibility

The primary first-line responsibility and authority for developing and conducting the Annual R&D Work Program of the Engineering Research and Development Bureau is assigned to its Director. Managerial responsibility and authority for developing and conducting the R&D Program in turn progresses upward through the Deputy Chief Engineer (Research), the Chief Engineer, the Assistant Commissioner for Transportation Operations, the Executive Deputy Commissioner, and ultimately to the Commissioner of Transportation.

A secondary responsibility to ensure that the Annual R&D Program of the ERDB is responsive to the transportation goals of the department rests upon all other program directors. This secondary responsibility is by virtue of their being members of the department managerial staff which shares equally in the department-wide assignment of providing to the people of New York State adequate, safe, and efficient transportation facilities and services at reasonable cost.

The secondary R&D responsibility of each department program director is inherent in his normal, day-to-day duties. Each director should as sound managerial practice continually review the activities of his program to determine how an R&D study might improve program performance, or how the results of a completed R&D project might best be implemented in his operations.

R&D Policy

The development of the Annual R&D Work Program of the ERDB will be in accord with the R&D policy guidelines established by the Commissioner. The policy guidelines will be issued through the appropriate organizational chain-of-command in whatever form deemed appropriate (i.e., verbal, memorandum, administrative procedure, etc.).

Policy guidelines will in major part originate from deliberations of the Commissioner and his executive staff. When directed to do so, the Research line units and the Policy Development Groups of the department will provide input support to these deliberations in the form of R&D discussion papers and presentations. Consequently, the R&D needs and interests of all the research-oriented program areas of the department will be represented in the R&D policy guidelines, due to the participation of the executive staff in their development.

Accordingly, the R&D Work Program of the ERDB will reflect a technical balance and direction as established by the R&D policy guidelines. If any program area within the department feels that the ERDB program balance or direction should be substantially modified, it has the continual opportunity through its executive staff representation to request such modification of the R&D policy guidelines. If the requested modification is approved by the Commissioner, the subsequent ERDB Work Programs would be modified accordingly.

For example, the Office of Planning and Development might feel that the technical balance of the ERDB Work Program should be divided evenly between mass transit-oriented research and highway-oriented research. Therefore, it would through the Assistant Commissioner of Planning and Development, request that the R&D policy guidelines as to ERDB program balance be appropriately modified.

THE SYSTEM

Program Development

The Director of the Engineering Research and Development Bureau has the primary responsibility to develop its Annual R&D Work Program. The very nature of R&D projects requires that a substantial portion of each annual work program be a carry-over of work initiated in previous years. Consequently, the inclusion of new projects in the

Annual R&D Program must allow for on-going staff commitments. In addition, the undertaking of new research projects must, of course, allow for their estimated benefits and costs, the urgency of a solution, and the probability of successful project completion and findings implementation. Also to be allowed for by the Director of the ERDB are the capabilities of his staff, the research facilities available to them and, most importantly, the technical balance of his R&D Program.

Program Input

As emphasized above, all program directors have a degree of responsibility in providing input to the development of each Annual R&D Work Program. The mechanism available to program directors to channel department-wide proposals for new R&D studies to the Director of the Engineering Research and Development Bureau is the RESEARCH NEEDS STATEMENT (Form PHR 73 - copy attached). It provides all program directors and their subordinates with a format to be used in submitting such proposals. The format is designed to guide the proposer to review his research suggestion against such factors as a concise definition of the problem, the specific objectives of the proposed research and their priorities, the benefits resulting from the study and how the findings would be implemented.

The proposer is also requested to indicate who will provide liaison between his organization and the ERDB relative to the study proposed in the Research Needs Statement. The informal designation by the program manager of a specific individual in each program area (Main and Regional offices) to serve as liaison between that program and the ERDB is highly recommended. Such a research liaison representative will maintain a continuing contact between his operating units and the ERDB. In this way Research Needs Statements will be submitted in a well-considered and balanced fashion during the year.

The close liaison maintained by a program area research representative with the ERDB will also ensure that any studies proposed by that program area and which are subsequently incorporated into the Work Program will be conducted substantially as proposed and will not drift radically away from the original objectives. In addition, through continual liaison a research representative will have up-to-date knowledge of research findings as they develop. Consequently, his program area will prepare in advance for their implementation once they have become finalized. Continual liaison will also make more efficient the administrative handling of such matters as the inspection and contract procedures for FHWA aided construction projects incorporating experimental features, as currently detailed in FHWA PPM 20-6.3.

Those program areas that elect not to maintain a continuous liaison with the ERDB will be requested each year by the Director of the ERDB to submit to him Research Need Statements which will be considered for the R&D Work Program for the fiscal year beginning the following calendar year.

The Director of the ERDB and his staff will review and evaluate the Research Need Statements to determine if solutions already exist for the problems posed, or if on-going research is being conducted to resolve them. The Research Needs Statements will also be considered against the technical balance of the R&D Work Program as dictated by the R&D policy guidelines of the department. The originators of Research Needs Statements will be subsequently notified by the Director of the ERDB as to the status of their submissions and, if they are not included in the Annual R&D Work Program, the reasons for their exclusion.

Program Review

The Director of the Engineering Research and Development Bureau, after evaluating the Research Needs Statements and considering the obligations of the on-going R&D Program, formally submits a proposed R&D Work Program to the R&D chain-of-command for review, modification and approval. That is, through the Deputy Chief Engineer (Research) and the Chief Engineer to the Assistant Commissioner for Transportation Operations.

If the Assistant Commissioner for Transportation Operations so directs, a multi-division advisory group will be formed to review for him the proposed R& D Work Program to ensure that it fully reflects the R&D needs of the department. The group will be formed and disbanded on a frequency directed by the Assistant Commissioner, as will be the establishment of the size of the group and the technical qualifications of its members. The advisory group will normally consist of representatives from the program areas represented in the research program and will be in proportion to the research policy goals of ERDB. Its chairman will be designated by the Assistant Commissioner. Representation in the group by program managers from other offices within the department will be encouraged and will be by invitation of the Assistant Commissioner for Transportation Operations through the Assistant Commissioners of those offices.

The advisory group will review the proposed R&D Work Program from the viewpoint of department-wide R&D balance. Policy guidance in this regard as directed by the Commissioner will be provided through the Assistant Commissioner for Transportation Operations. Also, the advisory group will as individuals technically review the proposed projects that specifically effect or emanate from their program area. The chairman of the advisory group will report its recommendations to the Assistant Commissioner for Transportation Operations who will take whatever actions he feels are appropriate regarding the recommendations and the proposed R&D Work Program.

Program Approval

The proposed R&D Work Program document of the Engineering Research and Development Bureau is subsequently submitted by the Assistant Commissioner for Transportation Operations to the Office of the Commissioner for final review, possible modification and formal approval. Using this approach, all department offices having a research interest will be assured representation and a fair apportionment of ERDB's research efforts.

Program Budget

Subsequent to approval by the Commissioner, the R&D Work Program document is transmitted by the Assistant Commissioner for Transportation Operations to the Assistant Commissioner of Management and Finance for incorporation into the annual budget submission of the department.

It is of importance to note that the R&D Work Program has been approved by the Commissioner based upon the justified R&D needs of the department. Consequently, any subsequent budget modifications to the R&D Work Program will be from the method-of-justification viewpoint, rather than from an R&D needs viewpoint. The R&D Work Program-Budget Request will be referred back to the Assistant Commissioner for Transportation Operations for his final review before it is transmitted from the department to the Division of the Budget.

In like manner, an on-going approved and budgeted R&D Work Program will not be substantially modified through the cancellation of on-going or to-be-started projects without prior notification by the Director of the Engineering Research and Development Bureau to the Assistant Commissioner for Transportation Operations through the appropriate review and approval channels.

Program Control

Following the development and administrative budgetary approval of the R&D Work Program is its implementation. The management of program implementation has as part of its primary goals the maximization of the quality and quantity of research findings and the minimization of research costs. The achievement of these goals is through the normal managerial responsibility and authority control and reporting procedures that now exist within the Office of Transportation Operations. That is, through the Director of the ERDB, the Deputy Chief Engineer (Research), the Chief Engineer and the Assistant Commissioner for Transportation Operations.

Implementation of R&D Results

Research findings are distributed within the department by the Engineering Research and Development Bureau through formal research reports, as well as through specification and standard sheet issuances, general directives and technical memorandums and meetings by the appropriate program managers.

The successful implementation of the results of the R&D Work Program falls within the normal managerial responsibility and authority areas of the department. That is, just as all program managers have a responsibility to provide input to the development of the R&D Work Program of the ERDB, they also have the very important responsibility of implementing the results of the program as soon as is appropriate.

The organizational manner of research findings implementation follows the normal managerial process of the department. Accountability as to the degree to which research findings are successfully implemented also resides within the normal managerial process.

FHWA Participation

The funding of the R&D Work Program of the Engineering Research and Development Bureau is a cooperative effort with the Federal Highway Administration. Accordingly, the Annual R&D Work Program of the ERDB must be submitted subsequent to its approval by the Commissioner to the FHWA for its review and approval.

The submission of the ERDB Work Program to the FHWA is performed through the Office of Planning and Development. The Assistant Commissioner for Transportation Operations transmits the Annual R&D Work Program of the ERDB to the Office of Planning and Development where it is included with its R&D submission to the FHWA.

The sequence of review and approval of the R&D Work Program-Budget Requests by the State (i.e., the Department, the Division of the Budget, the Governor's office and the Legislature) and by the FHWA is out-of-phase due to differing fiscal years. Consequently, the department approved R&D Work Program of the ERDB is submitted for review to the FHWA prior to its total approval by the State. Any substantial modifications to the R&D Work Program due to subsequent State actions are transmitted to the FHWA as a responsibility of the Director of the ERDB.

CLOSURE

The responsibilities and authorities that have been discussed above regarding R&D matters are inherent within the normal duty statements of the personnel to whom these matters have been ascribed. The conscientious fulfillment by all program managers of their day-to-day R&D related responsibilities will ensure the success of the R&D Program of the department. It is for that specific reason that the system outlined above for the development and review of the Annual Work Program of the Engineering Research and Development Bureau functions totally within the existing organizational structure of the department.

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APPENDIX

RESEARCH NEEDS STATEMENT

The information you supply on this form is your principal means of suggesting researchable subjects for the work program of the Engineering Research and Development Bureau. Subjects are selected for formal research on the basis of estimated benefits, urgency of solution, estimated costs, probability of successful completion, probability of implementation, staff capability, available facilities, current staff commitments, and general program balance.

The information that you supply will provide a basis for review by the research staff and future consultation with your engineers. Thus, it is essential that your statements be as detailed and factual as possible. Please send your completed Research Needs Statement to The Director, Engineering Research and Development Bureau, Main Office, New York State Department of Transportation.

1. SHORT TITLE (try to limit proposed project title to 50 characters or spaces):

   _____

2. SUBMITTED BY:

   _____

   _____

   DOT AGENCY:

   _____

   DATE: _____

PHR 73 (3/71)

3. PROBLEM DEFINITION (concisely describe the background of the problem or subject to be researched):

4. SPECIFIC RESEARCH OBJECTIVES (list specific technical objectives to be accomplished before the study can be considered completed):

a.

b.

c.

d.

e.

5. BENEFITS (state as accurately, specifically, and quantitatively as possible how the study may increase usefulness or efficiency, decrease costs, enhance safety or beauty, or provide other benefits when anticipated results are implemented):

_____

_____

_____

_____

_____

_____

_____

_____

_____

6. IMPLEMENTATION:

a. What DOT agency will be responsible for implementing results?

_____

b. In what specific form will results be implemented? (specifications, design practice, construction practice, etc.)

_____

_____

c. What is your estimate (state approximate percent) of the probability of implementing the anticipated results?

_____

d. What problems do you anticipate in implementing results?

_____

_____

e. By what date must the project be completed in order for anticipated results to be useful?

_____

7. RESOURCES (include whatever published or unpublished reports, memoranda or other data you know of that may be useful in solving the problem, and what personnel, equipment, or facilities could you provide if required in the course of the study):

8. Who in your organization should be contacted to discuss questions that may arise regarding the content of this Research Needs Statement? At what phone number?

9. OTHER REMARKS:

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